nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS, and which antibody does not bind [to] a *Drosophila* Delta protein.

30 (once amended). An antibody, which [is capable of binding the Delta protein of claim 2, and] binds a human Delta protein, which Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, and the antisense strand to the human *Delta* sequence of SEQ ID NO:26, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution

containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS, which does not bind [to] a *Drosophila* Delta protein.

31 (once amended). The antibody of claim [1] 29 or 30 which is monoclonal.

32 (once amended). A molecule comprising a fragment of the antibody of claim 31, which fragment [is capable of binding] binds a vertebrate Delta protein.

60 (once amended). A [pharmaceutical] composition comprising [a therapeutically effective] an amount of an antibody which binds to a vertebrate Delta protein; and a pharmaceutically acceptable carrier, which Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS, and which antibody does not bind a *Drosophila* Delta protein.

61 (once amended). A [pharmaceutical] composition comprising [a therapeutically effective] an amount of a fragment or derivative of an antibody to a vertebrate Delta protein containing the binding domain of the antibody; and a pharmaceutically acceptable carrier, which Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the

antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS, and which antibody does not bind a *Drosophila* Delta protein.

Please add the following new claims:

99 (new). The antibody of claim 29, 60 or 61, in which the Delta protein comprises an amino acid sequence selected from the group consisting of the chick Delta sequence of SEQ ID NO:2, the mouse Delta sequence of SEQ ID NO:12, the human Delta sequence of SEQ ID NO:23, and the human Delta sequence of SEQ ID NOS:65-80.

100 (new). The composition of claim 60 or 61, in which the antibody is monoclonal.

101 (new). A fragment of the antibody of claim 29 or 30, which fragment binds a vertebrate Delta protein.

102 (new). The antibody of claim 29, 30, 31 or 99, which antibody is purified.

103 (new). The fragment of claim 101, which fragment is purified.

104 (new). The molecule of claim 32, which molecule is purified.

105 (new). The antibody of claim 29, in which the Delta protein comprises the amino acid sequence of SEQ ID NOS:65-80.

106 (new). The antibody of claim 29, in which the Delta protein comprises the amino acid sequence of SEQ ID NO:23.

107 (new). The antibody of claim 29, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, and the antisense strand to the human *Delta* sequence of SEQ ID NO:26, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS.

108 (new). The antibody of claim 29, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS.

109 (new). A method of making an antibody comprising:

(a) administering an immunogenic amount of a vertebrate Delta protein to a host animal, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the

antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS, such that an antibody to said Delta protein is produced by said host animal; and

(b) recovering the antibody.

110 (new). The method of claim 109, in which the Delta protein comprises the amino acid sequence of SEQ ID NOS:65-80.

111 (new). The method of claim 109, in which the Delta protein comprises the amino acid sequence of SEQ ID NO:23.

112 (new). The method of claim 109, in which the Delta protein comprises the amino acid sequence of SEQ ID NO:12.

113 (new). The method of claim 109, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, and the antisense strand to the human *Delta* sequence of SEQ ID NO:26, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution

containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 μg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS.

114 (new). A method of making an antibody comprising:

(a) administering an immunogenic amount of a fragment of a vertebrate Delta protein to a host animal, in which the fragment comprises a domain of the protein selected from the group consisting of the extracellular domain, DSL domain, domain amino-terminal to the DSL domain, epidermal growth factor-like repeat domain, transmembrane domain, and intracellular domain, in which the Delta protein is comprises an amino acid sequence encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 μg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 μg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS, such that an antibody to said fragment is produced by said host animal; and

(b) recovering the antibody.

115 (new). The method of claim 114, in which the fragment of the vertebrate Delta protein comprises the membrane-associated region of the Delta protein.

116 (new). The method of claim 114, in which the fragment of the vertebrate Delta protein comprises an epidermal growth factor-homologous repeat of the protein.

117 (new). The method of claim 114, in which the fragment of the vertebrate Delta protein consists of at least 20 contiguous amino acids of the vertebrate Delta protein.

118 (new). The method of claim 114, in which the fragment of the vertebrate Delta protein lacks the transmembrane and intracellular domain of the protein.

119 (new). The method of claim 114, in which the fragment of the vertebrate Delta protein lacks the extracellular domain of the protein.

120 (new). The method of claim 114, in which the fragment of the vertebrate Delta protein lacks the epidermal growth factor-like repeats of the protein.

121 (new). An antibody produced by the method of claim 109, which does not bind a *Drosophila* Delta protein.

122 (new). An antibody produced by the method of claim 114, which does not bind a *Drosophila* Delta protein.

123 (new). The antibody of claim 121 or 122, in which the antibody is monoclonal.

124 (new). The antibody of claim 121, 122 or 123, in which the antibody is purified.

125 (new). A composition comprising an amount of an antibody of claim 121, 122, 123 or 124, and a pharmaceutically acceptable carrier.

126 (new). The method of claim 109 or 114, in which the Delta protein comprises an amino acid sequence selected from the group consisting of the chick Delta sequence of SEQ ID NO:2, the mouse Delta sequence of SEQ ID NO:12, the human Delta sequence of SEQ ID NO:23, and the human Delta sequence of SEQ ID NOS:65-80.

127 (new). The method of claim 109 or 114, in which the Delta protein comprises an amino acid sequence selected from the group consisting of the human Delta sequence of SEQ ID NO:23.

128 (new). The method of claim 109 or 114, in which the Delta protein comprises an amino acid sequence selected from the group consisting of the human Delta sequence of SEQ ID NOS:65-80.

129 (new). A method of making an antibody comprising:

(a) administering an immunogenic amount of a protein comprising a fragment of a vertebrate Delta protein to a host animal, in which the fragment comprises a domain of the

protein selected from the group consisting of the extracellular domain, DSL domain, domain amino-terminal to the DSL domain, epidermal growth factor-like repeat domain, transmembrane domain, and intracellular domain, in which the Delta protein is comprises an amino acid sequence encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS, such that an antibody to said Delta fragment is produced by said host animal; and

A 10

(b) recovering the antibody.

130 (new). The method according to claim 129, in which the fragment of the Delta protein is joined via a peptide bond to an amino acid sequence of a second protein, in which the second protein is not the Delta protein.

131 (new). A method of making a monoclonal antibody comprising:

(a) administering an immunogenic amount of a vertebrate Delta protein to a mouse, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the

antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS;

(b) recovering spleen cells from said mouse;

(c) fusing the recovered spleen cells with a cell of a mouse myeloma to generate hybridomas;

(d) screening to select a hybridoma producing antibody to said vertebrate Delta protein; and

(e) recovering the antibody.

132 (new). A method of making a monoclonal antibody comprising:

(a) fusing a spleen cell from a mouse immunized with an immunogenic amount of a vertebrate Delta protein with a cell of a mouse myeloma to generate hybridomas, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of

SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS;

(b) screening to select a hybridoma producing antibody to said vertebrate Delta protein; and

(c) recovering the antibody.

133 (new). A method of making a monoclonal antibody comprising:

(a) administering an immunogenic amount of a vertebrate Delta protein to a host animal, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5

mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS;

(b) recovering lymphocytes from said host animal;

(c) fusing the recovered lymphocytes with a cell of a myeloma, plastocytoma or lymphoblastoid cell line to generate hybridomas;

(d) screening to select a hybridoma producing antibody to said vertebrate Delta protein; and

(e) recovering the antibody.

134 (new). A method of making a monoclonal antibody comprising:

(a) fusing a lymphocyte from a host animal immunized with an immunogenic amount of a vertebrate Delta protein with a cell of a myeloma, plastocytoma or lymphoblastoid cell line to generate hybridomas, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS;

(b) screening to select a hybridoma producing antibody to said vertebrate Delta protein; and

(c) recovering the antibody.

135 (new). A method of making a monoclonal antibody comprising:

(a) administering an immunogenic amount of a vertebrate Delta protein to a host animal, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS;

(b) recovering lymphocytes from said host animal;

(c) immortalizing the recovered lymphocytes with Epstein-Barr virus to generate immortalized cells;

(d) screening to select an immortalized cell producing antibody to said vertebrate Delta protein; and

(e) recovering the antibody.

136 (new). A method of making a monoclonal antibody comprising:

(a) immortalizing a lymphocyte from a host animal immunized with an immunogenic amount of a vertebrate Delta protein with Epstein-Barr virus to generate immortalized cells, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the

antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS;

(b) screening to select an immortalized cell producing antibody to said vertebrate Delta protein; and

(c) recovering the antibody.

137 (new). A method of producing a phage Fab expression library comprising:

(a) isolating spleen cells from a host animal immunized with an immunogenic amount of a vertebrate Delta protein, in which the Delta protein is encoded by a first nucleic acid that hybridizes under low stringency conditions to a second nucleic acid, or its complement, which second nucleic acid is selected from the group consisting of the chick *Delta* sequence of SEQ ID NO:1, the antisense strand to the chick *Delta* sequence of SEQ ID NO:1, the chick *Delta* sequence of SEQ ID NO:3, the antisense strand to the chick *Delta* sequence of SEQ ID NO:3, the mouse *Delta* sequence of SEQ ID NO:11, the antisense strand to the mouse *Delta* sequence of SEQ ID NO:11, the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24, said low stringency conditions

comprising pretreatment for 6 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.1% PVP, 0.1% Ficoll, 1% BSA, and 500 µg/ml denatured salmon sperm DNA; hybridization for 18-20 hours at 40°C in a solution containing 35% formamide, 5X SSC, 50 mM Tris-HCl (pH 7.5), 5 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.2% BSA, 100 µg/ml denatured salmon sperm DNA, and 10% (wt./vol.) dextran sulfate; washing for 1.5 hours at 55°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS; and a second washing for 1.5 hours at 60°C in a solution containing 2X SSC, 25 mM Tris-HCl (pH 7.4), 5 mM EDTA and 0.1% SDS;

(b) amplifying, by polymerase chain reaction, antibody heavy and light chain nucleotide sequences from messenger RNA isolated from the spleen cells;

(c) cloning the amplified heavy chain and light chain nucleotide sequences into a lambda phage vector to produce a heavy chain library and a light chain library, respectively;

(d) combining and ligating the heavy and light chain nucleotide sequences from the heavy chain and light chain libraries to produce a phage Fab expression library that co-expresses antibody heavy and light chains; and

(e) screening the expression library for a phage that binds said Delta protein.

138 (new). The method of claim 131, 132, 133, 134, 135, 136 or 137, which second nucleic acid is selected from the group consisting of the human *Delta* sequence of SEQ ID NO:14, the antisense strand to the human *Delta* sequence of SEQ ID NO:14, the human *Delta* sequence of SEQ ID NO:26, the antisense strand to the human *Delta* sequence of SEQ ID NO:26, the mouse-human *Delta* consensus sequence of SEQ ID NO:24, and the antisense strand to the mouse-human *Delta* consensus sequence of SEQ ID NO:24.

139 (new). The method of claim 131, 132, 133, 134, 135, 136 or 137, in which the Delta protein comprises the amino acid sequence of SEQ ID NOS:65-80.

140 (new). The method of claim 131, 132, 133, 134, 135, 136 or 137, in which the Delta protein comprises the amino acid sequence of SEQ ID NO:23.

141 (new). The method of claim 131, 132, 133, 134, 135, 136 or 137, in which the Delta protein comprises the amino acid sequence of SEQ ID NO:12.

142 (new). An antibody produced by the method of claim 131, 132, 133, 134, 135, 136 or 137, which does not bind a *Drosophila* Delta protein.

143 (new). The antibody of claim 142, in which the antibody is purified.

144 (new). A composition comprising the antibody of claim 142, and a pharmaceutically acceptable carrier.